



MARKED COPY OF THE AMENDED CLAIMS

4. The nucleic acid of claim 3, said polypeptide having antiproliferative activity in a human Daudi cell line-based cell proliferation assay or antiviral activity in a human WISH cell/EMCV-based assay.

54. (amended) The polypeptide of claim ~~31~~, 34, 37, 41 or 51, further comprising a secretion/localization sequence.

55. (amended) The polypeptide of claim ~~31~~, 34, 37, 41 or 51, further comprising a polypeptide purification subsequence.

57. (amended) The polypeptide of claim ~~31~~, 34, 37, 41 or 51, further comprising a Met at the N-terminus.

58. (amended) The polypeptide of claim ~~31~~, 34, 37, 41 or 51, comprising a modified amino acid.

60. (amended) A composition comprising the polypeptide of claim ~~31~~, 34, 37, 41 or 51 and an excipient.

64. (amended) An antibody or antisera produced by administering the polypeptide of claim ~~31~~, 34, 37, 41 or 51 to a mammal, which antibody or antisera specifically binds at least one antigen, said at least one antigen comprising a polypeptide comprising one or more of the amino acid sequences of SEQ ID NO:36 to SEQ ID NO:70 and SEQ ID NO:79 to SEQ ID NO:85, or a fragment thereof, which antibody or antisera does not specifically bind to an IFN- α polypeptide encoded by a nucleic acid corresponding to one or more of GenBank accession number: J00210 (alpha-D), J00207 (Alpha-A), X02958 (Alpha-6), X02956 (Alpha-5), V00533 (alpha-H), V00542 (alpha-14), V00545 (IFN-1B), X03125 (alpha-8), X02957 (alpha-16), V00540 (alpha-21), X02955 (alpha-4b), V00532 (alpha-C), X02960 (alpha-7), X02961 (alpha-10 pseudogene), R0067 (Gx-1), I01614, I01787, I07821, M12350 (alpha-F), M38289, V00549 (alpha-2a), and I08313 (alpha-Con1).

68. (amended) A method of inhibiting growth of population of tumor cells, the method comprising:

contacting the population of tumor cells with an effective amount of a polypeptide of claim ~~31~~, 34, 37, 41 or 51 sufficient to inhibit growth of tumor cells in said population of tumor cells, thereby inhibiting growth of tumor cells in said population of cells.

71. (amended) A method of inhibiting the replication of a virus within at least one cell infected by the virus, the method comprising:

contacting said at least one infected cell with an effective amount of a polypeptide of claim ~~31~~, 34, 37, 41 or 51 sufficient to inhibit viral replication in said at least one infected cell, thereby inhibiting replication of the virus in said at least one infected cells.

77. (amended) A method of treating an autoimmune disorder in a patient, the method comprising: administering to the patient an effective amount of the polypeptide of claim ~~31~~, 34, 37, 41 or 51.

79. (amended) In a method of treating a disorder treatable by administration of interferon-alpha to a subject, an improved method comprising: administering to the subject an effective amount of the polypeptide of claim ~~31~~, 34, 37, 41 or 51.

120. (amended) The polypeptide of ~~any of claims~~ claim ~~31~~, 34, 37, 41 or 51, said polypeptide having an increased growth inhibition activity against a population of cancer cells relative to the inhibition activity of human interferon-alpha 2a against the population of cancer cells.

124. (new) The polypeptide of claim 31, further comprising a secretion/localization sequence.

125. (new) The polypeptide of claim 31, further comprising a polypeptide purification subsequence.

126. (new) The polypeptide of claim 125, wherein the sequence that facilitates purification is selected from the group consisting of: an epitope tag, a FLAG tag, a polyhistidine tag, and a GST fusion.

127. (new) The polypeptide of claim 31, further comprising a Met at the N-terminus.

128. (new) The polypeptide of claim 31, comprising a modified amino acid.

129. (new) The polypeptide of claim 127, wherein the modified amino acid is selected from the group consisting of: a glycosylated amino acid, a PEGylated amino acid, a farnesylated amino acid, an acetylated amino acid, and a biotinylated amino acid.

130. (new) A composition comprising the polypeptide of claim 31, and an excipient.

131. (new) The composition of claim 129, wherein the excipient is a pharmaceutically acceptable excipient.

132. (new) A composition comprising the polypeptide of claim 128 in a pharmaceutically acceptable excipient.

133. (new) An antibody or antisera produced by administering the polypeptide of claim 31, to a mammal, which antibody or antisera specifically binds at least one antigen, said at least one antigen comprising a polypeptide comprising one or more of the amino acid sequences of SEQ ID NO:36 to SEQ ID NO:70 and SEQ ID NO:79 to SEQ ID NO:85, or a fragment thereof, which antibody or antisera does not specifically bind to an IFN- α polypeptide encoded by a nucleic acid corresponding to one or more of GenBank accession number: J00210 (alpha-D), J00207 (Alpha-A), X02958 (Alpha-6), X02956 (Alpha-5), V00533 (alpha-H), V00542 (alpha-14), V00545 (IFN-1B), X03125 (alpha-8), X02957 (alpha-16), V00540 (alpha-21), X02955 (alpha-

4b), V00532 (alpha-C), X02960 (alpha-7), X02961 (alpha-10 pseudogene), R0067 (Gx-1), I01614, I01787, I07821, M12350 (alpha-F), M38289, V00549 (alpha-2a), and I08313 (alpha-Con1).

134. (new) A method of inhibiting growth of population of tumor cells, the method comprising:

contacting the population of tumor cells with an effective amount of a polypeptide of claim 31 sufficient to inhibit growth of tumor cells in said population of tumor cells, thereby inhibiting growth of tumor cells in said population of cells.

135. (new) The method of claim 134, wherein the tumor cells are selected from the group consisting of: human carcinoma cells, human leukemia cells, human T-lymphoma cells, and human melanoma cells.

136. (new) The method of claim 134, wherein the tumor cells are in culture.

137. (new) A method of inhibiting the replication of a virus within at least one cell infected by the virus, the method comprising:

contacting said at least one infected cell with an effective amount of a polypeptide of claim 31 sufficient to inhibit viral replication in said at least one infected cell, thereby inhibiting replication of the virus in said at least one infected cells.

138. (new) The method of claim 137, wherein the virus is an RNA virus.

139. (new) The method of claim 138, wherein the virus is a human immunodeficiency virus or a hepatitis C virus.

140. (new) The method of claim 137, wherein the virus is a DNA virus.

141. (new) The method of claim 139, wherein the virus is a hepatitis B virus.

142. (new) The method of claim 137, wherein the cells are cultured.

143. (new) A method of treating an autoimmune disorder in a patient, the method comprising: administering to the patient an effective amount of the polypeptide of claim 31.

144. (new) The method of claim 143, wherein the autoimmune disorder is selected from the group consisting of multiple sclerosis, rheumatoid arthritis, lupus erythematosus, and type I diabetes.

145. (new) In a method of treating a disorder treatable by administration of interferon-alpha to a subject, an improved method comprising: administering to the subject an effective amount of the polypeptide of claim 31.

146. (new) The method claim 145, wherein the disorder treatable by administration of interferon-alpha is selected from the group consisting of: sclerosis, rheumatoid arthritis, lupus erythematosus, and type I diabetes.

147. (new) The polypeptide of any of claims claim 31, said polypeptide having an increased growth inhibition activity against a population of cancer cells relative to the inhibition activity of human interferon-alpha 2a against the population of cancer cells.

148. (new) The polypeptide of claim 147, wherein the population of cancer cells comprises a cancer cell line selected from: a leukemia cell line, a melanoma cell line, a lung cancer cell line, a colon cancer cell line, a CNS cancer cell line, an ovarian cancer cell line, a breast cancer cell line, a prostate cancer cell line, and a renal cancer cell line, the growth inhibition activity measured as the concentration of polypeptide or human interferon-alpha 2a causing a 50% inhibition of growth of the cell line (GI50 value), wherein the polypeptide has a GI50 value at least 2-fold lower than the GI50 value of the human interferon-alpha 2a.